

FIG. 1

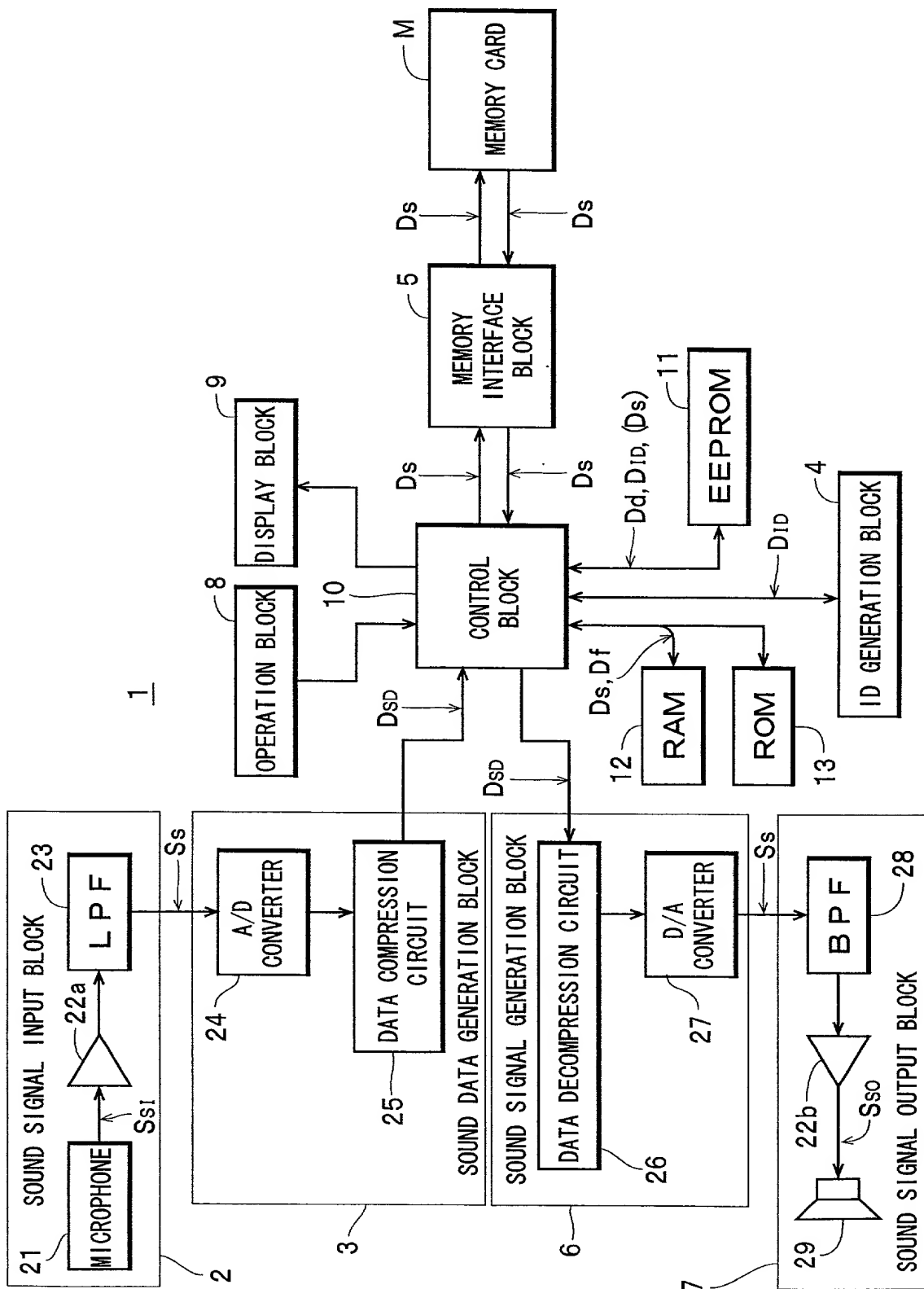


FIG. 2

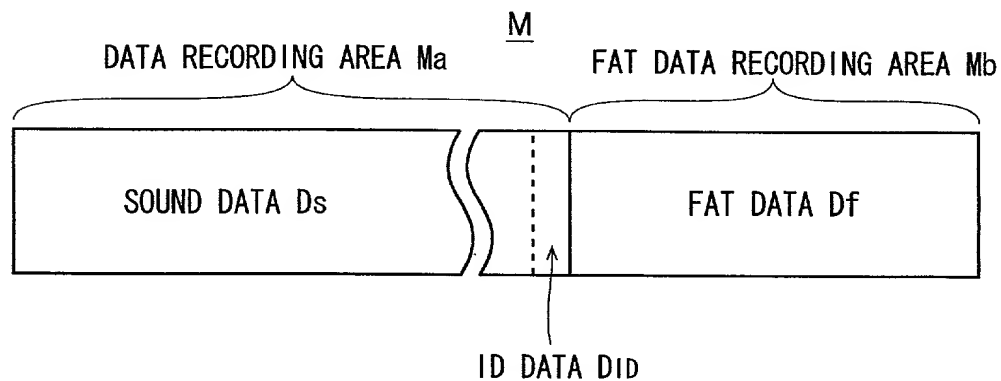


FIG. 3

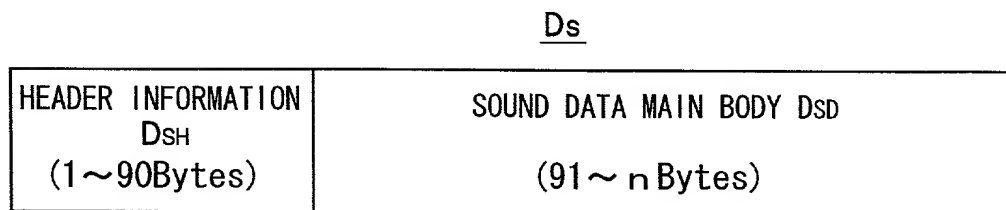


FIG. 4

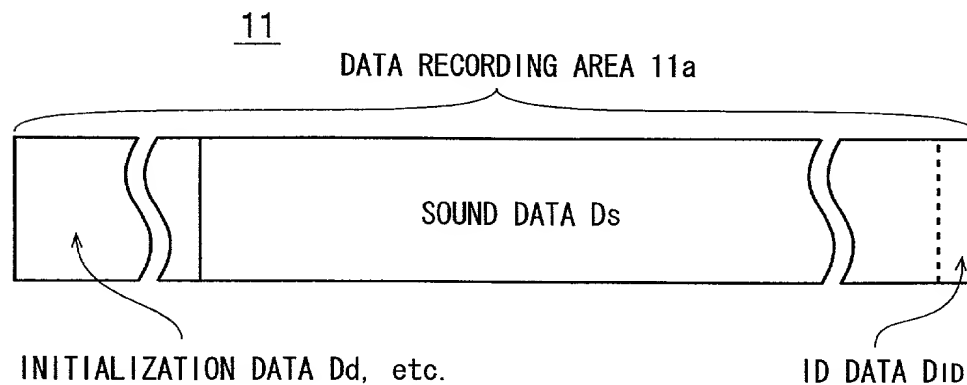


FIG. 5

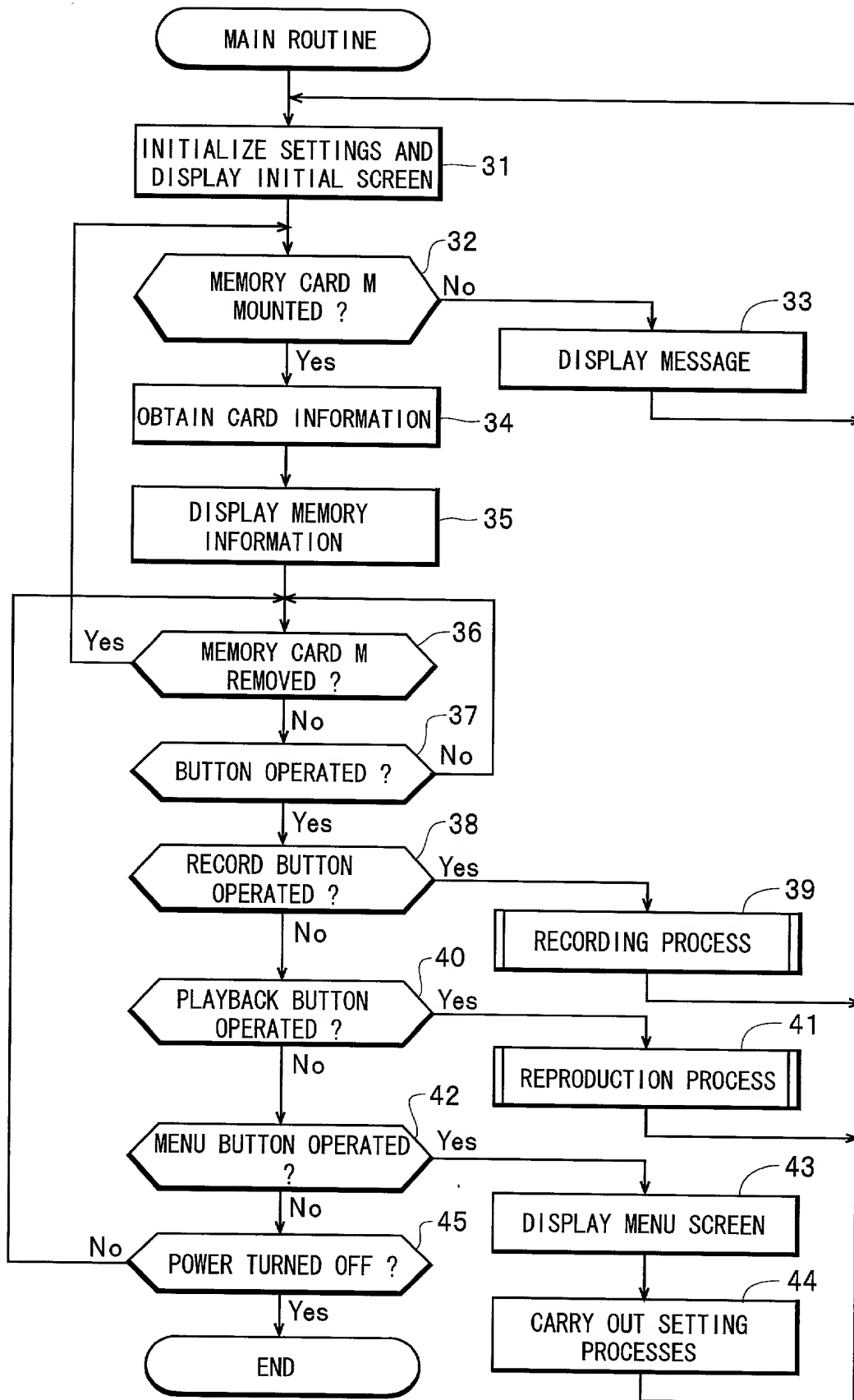


FIG. 6

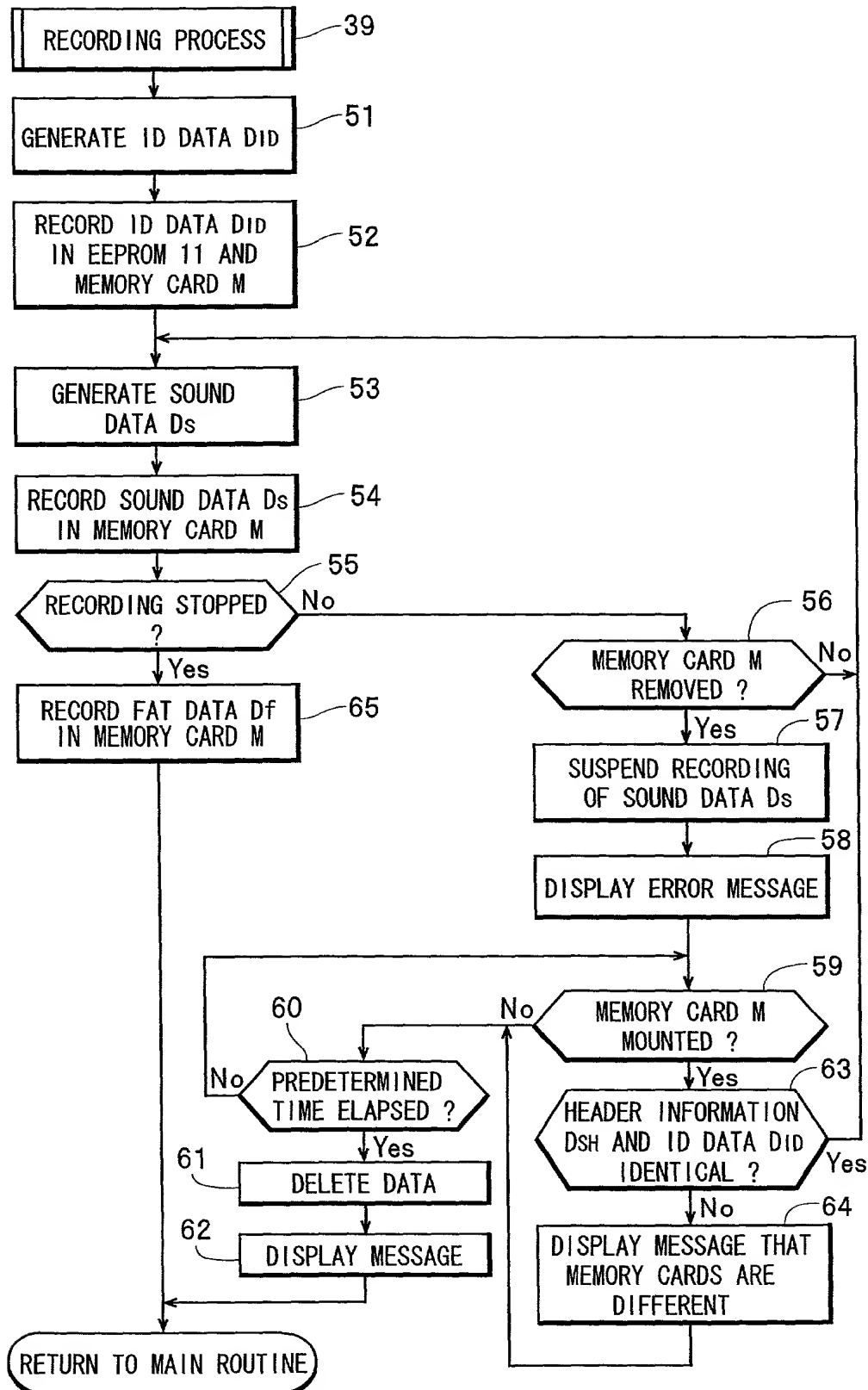


FIG. 7

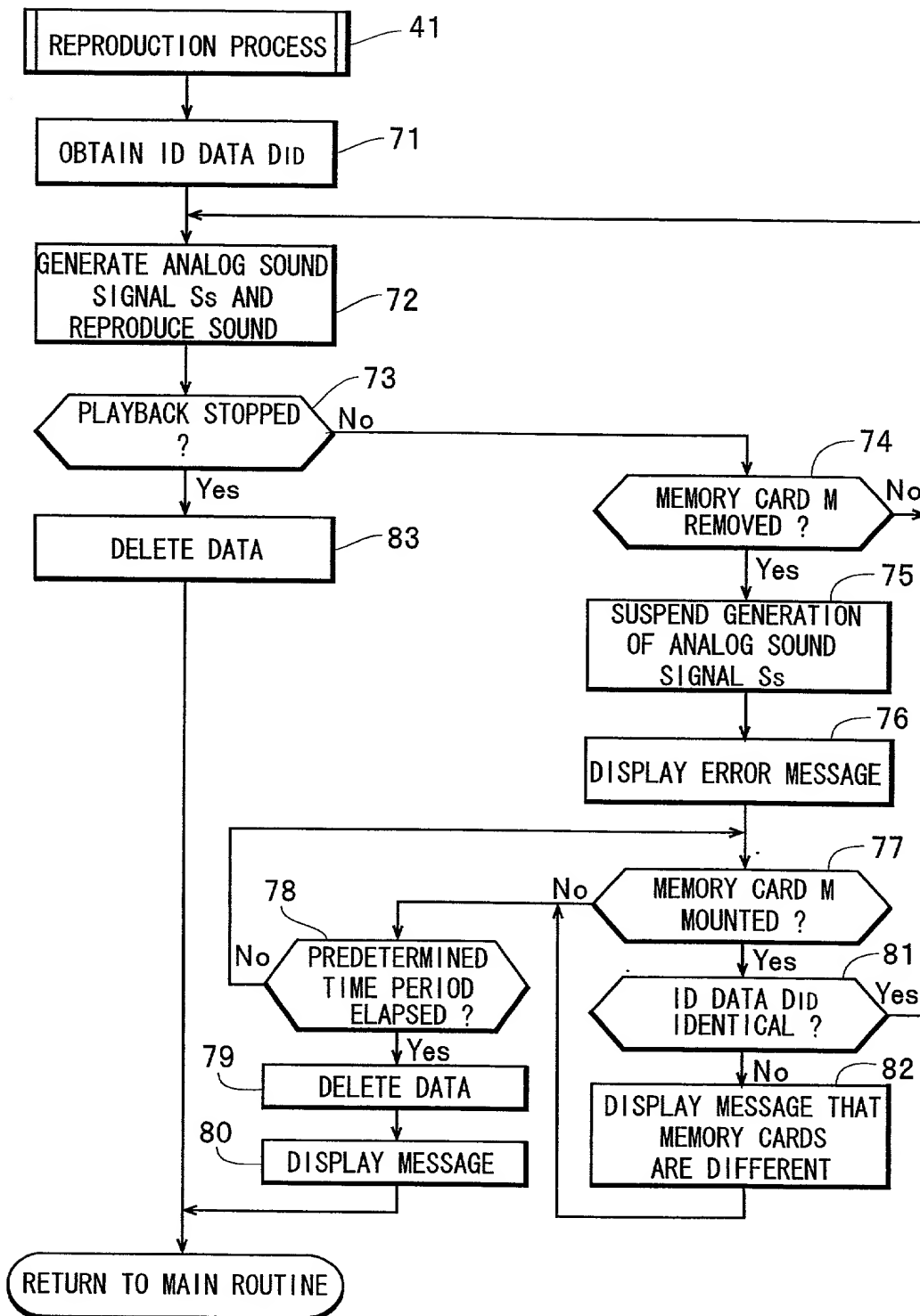


Figure 1 shows the typical microstructures of the as-cast and heat-treated samples. The as-cast sample shows a typical dendritic structure, while the heat-treated samples show a more uniform, fine-grained structure. The grain size of the heat-treated samples is significantly smaller than that of the as-cast sample, indicating a successful grain refinement process.

